

2. (Amended) The interferometer of claim 1, wherein said multiplexer portion comprises:

a first interior face, and

a second interior face opposite to said first interior face, said second interior face having disposed thereon a plurality of partially-transmissive output ports.

3. (Amended) The interferometer of claim 2, wherein said output ports comprise beam steering elements.

4. (Amended) The interferometer of claim 3, wherein said beam steering elements are configured to refract a beam incident from said first interior face into an intermediate beam normal to said second interior face.

5. (Amended) The interferometer of claim 3, wherein each of said beam steering elements comprises a diffraction grating.

6. (Amended) The interferometer of claim 3, wherein each of said beam steering elements comprises a volume of material having an index of refraction selected to refract said beam incident from said first interior face into said intermediate beam normal to said second interior face.

7. (Amended) The interferometer of claim 2, wherein said plurality of partially-transmissive refractors have transmissivities selected such that said each of said intermediate beams carries substantially the same power as any other intermediate beam.

10.(Amended) The interferometer of claim 1, further comprising a corner reflector in optical communication with said output port and said beam splitter portion, said corner reflector being configured to direct said intermediate beam from said multiplexer portion into said beam splitter portion.

**14.(Amended)** A multi-axis interferometer comprising:

an optically transparent monolith having

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a multiplexing layer that divides an input beam into a plurality of intermediate beams, each of which has a measurement component having a first polarization and a reference component having a second polarization, and

a beam splitting layer that directs said measurement component of each of said intermediate beams along a measurement path and said reference component of each of said intermediate beams along a reference path;

an output coupler in optical communication with said multiplexing layer and said beam splitting layer.

**20. (Amended)** A multi-axis interferometer comprising:

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a beam multiplexer for forming, from an input beam, a plurality of intermediate beams, each of which has a measurement component having a first polarization and a reference component having a second polarization, each of said intermediate beams;

a beam splitter integral with said beam multiplexer for directing said measurement component along a measurement path having a first path length and directing said reference component along a reference path having a second path length;

an output coupler providing optical communication between said beam multiplexer and said beam splitter.

**In the specification:**

On page 5, please amend the paragraph beginning on line 24 to read as follows: ✓